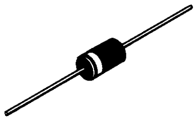
SCHOTTKY BARRIER RECTIFIER

21DQ06	CURRENT	60 **Volts** 2.0 **Ampere**



DO-41

Major Ratings and Characteristics

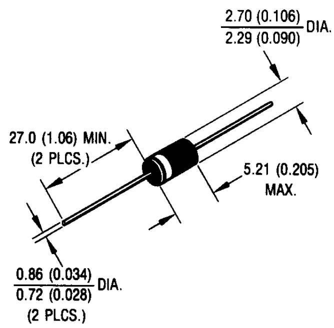
Characteristics	21DQ06	Units
$I_{F(AV)}$ Rectangular waveform	2	A
V_{RRM}	60	V
V_F @ 2 Apk, T_J = 125°C	0.55	V
T_J range	- 40 to 150	°C

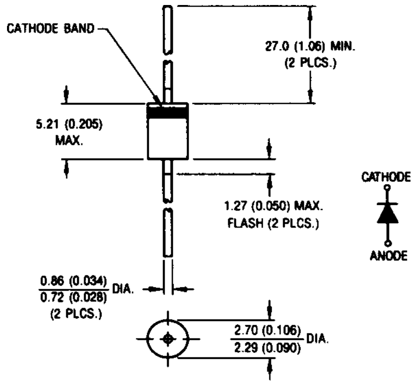
Description/Features

The 21DQ06 axial leaded Schottky rectifier has been optimized for very low forward voltage drop, with moderate leakage. Typical applications are in switching power supplies, converters, free-wheeling diodes, and reverse battery protection.

- Low profile, axial leaded outline
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- Very low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

CASE STYLE AND DIMENSIONS





Conform to JEDEC Outline DO-204AL (DO-41)

Dimensions in millimeters and inches

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Voltage Ratings

	Part number	21DQ06
V_R	Max. DC Reverse Voltage (V)	60
V_{RWM}	Max. Working Peak Reverse Voltage (V)	

Absolute Maximum Ratings

	Parameters	21DQ06	Units	Conditions	
$I_{F(AV)}$	Max. Average Forward Current * See Fig. 4	2	A	50% duty cycle @ T_C = 106°C, rectangular wave form	
I_{FSM}	Max. Peak One Cycle Non-Repetitive	340	A	5µs Sine or 3µs Rect. pulse	Following any rated load condition and with rated V_{RRM} applied
	Surge Current * See Fig. 6	60		10ms Sine or 6ms Rect. pulse	
E_{AS}	Non-Repetitive Avalanche Energy	4.0	mJ	T_J = 25 °C, I_{AS} = 1 Amps, L = 8 mH	
I_{AR}	Repetitive Avalanche Current	0.5	A	Current decaying linearly to zero in 1 µsec Frequency limited by T_J max. V_A = 1.5 x V_R typical	

Electrical Specifications

	Parameters	21DQ06		Units	Conditions	
		Typ.	Max.			
V_{FM}	Max. Forward Voltage Drop	0.53	0.60	V	@ 2A	T_J = 25 °C
	(1)	0.67	0.75	V	@ 4A	
		0.49	0.55	V	@ 2A	T_J = 125 °C
		0.61	0.67	V	@ 4A	
I_{RM}	Max. Reverse Leakage Current	0.02	0.50	mA	T_J = 25 °C	V_R = rated V_R
	(1)	7.0	10	mA	T_J = 125 °C	
C_T	Typical Junction Capacitance	120		pF	V_R = 5V_{DC}(test signal range100Khz to 1Mhz) 25°C	
L_S	Typical Series Inductance	8.0		nH	Measured lead to lead 5mm from package body	

(1) Pulse Width < 300µs, Duty Cycle <2%

Thermal-Mechanical Specifications

	Parameters	21DQ06	Units	Conditions
T_J	Max. Junction Temperature Range	-40 to 150	°C	
T_{stg}	Max. Storage Temperature Range	-40 to 150	°C	
R_{thJA}	Max. Thermal Resistance Junction to Ambient	100	°C/W	DC operation Without cooling fin
R_{thJL}	Typical Thermal Resistance Junction to Lead	25	°C/W	DC operation (See Fig. 4)
wt	Approximate Weight	0.33(0.012)	g (oz.)	
	Case Style	DO-204AL(DO-41)		

(*) $\frac{dPtot}{dTj} < \frac{1}{Rth(j\text{-}a)}$ thermal runaway condition for a diode on its own heatsink

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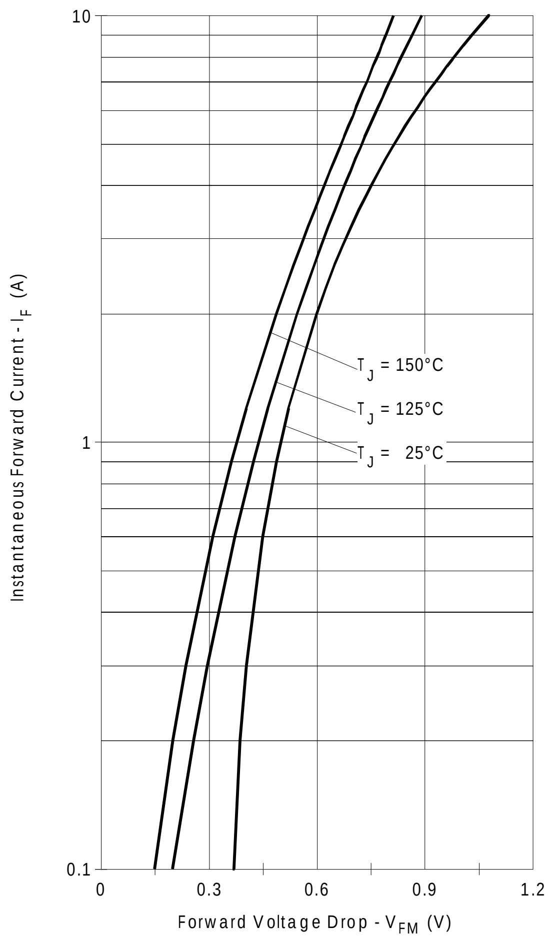

Fig. 1 - Maximum Forward Voltage Drop Characteristics

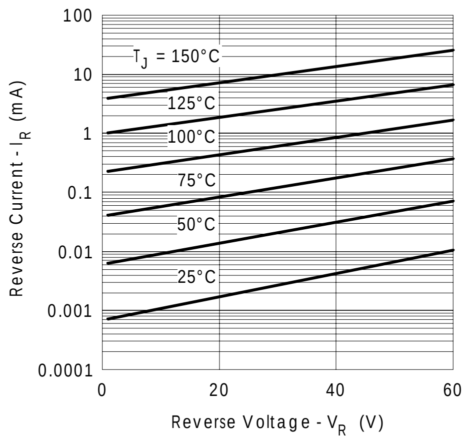

Fig. 2 - Typical Values of Reverse Current Vs. Reverse Voltage

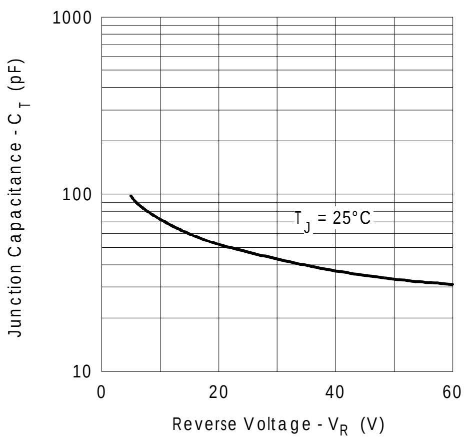

Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage

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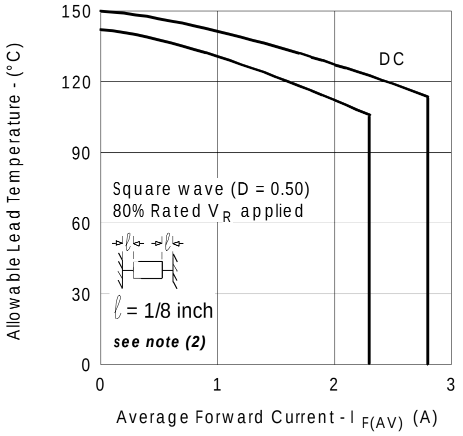

Fig. 4 - Maximum Allowable Lead Temperature Vs. Average Forward Current

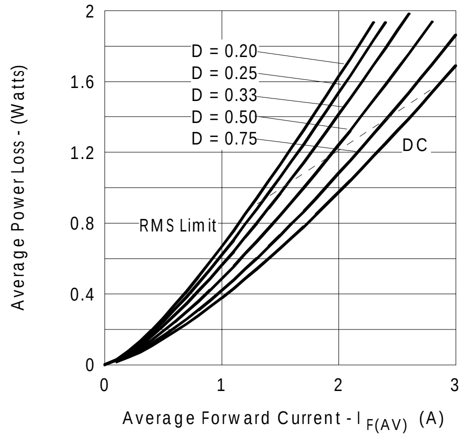

Fig. 5 - Forward Power Loss Characteristics

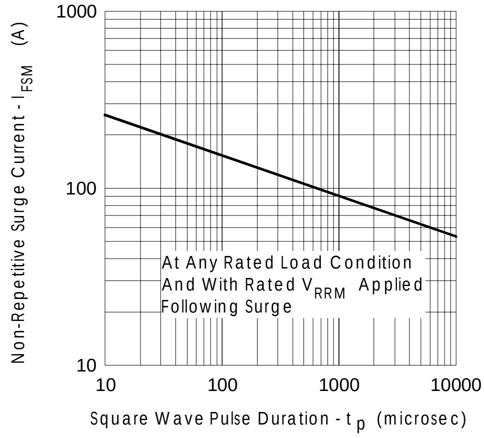

Fig. 6 - Maximum Non-Repetitive Surge Current

(2) Formula used: $T_L = T_J - (Pd + Pd_{REV}) \times R_{thJL}$;
Pd = Forward Power Loss = $I_{F(AV)} \times V_{FM}$ @ $(I_{F(AV)} / D)$ (see Fig. 5);
Pd_{REV} = Inverse Power Loss = $V_{R1} \times I_R (1 - D)$; I_R @ V_{R1} = 80% rated V_R